

27 January 1972

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MEMORANDUM FOR: Executive Director-Comptroller
SUBJECT: Optimization of the Agency's Research
and Development Effort

An effective research and development (R&D) effort is vital to the success of the Agency's mission. The collection and analyses needed for the production of intelligence, in general, require increasingly complex and innovative approaches for problem solving. To obtain the best R&D from the available resources to meet these needs, MAG has explored the possible ways of optimizing the Agency's R&D efforts. The scope of this paper is limited to the Agency's R&D program and will, of necessity, include advanced development and engineering. A systems analysis approach is believed to be desirable for a more comprehensive assessment of the R&D program.

MAG's suggestions are related to the following general subject areas:

1. Improvement in the interface between the developer and user.
2. The need for long-range planning.
3. Possible change in project approval procedures.
4. Clarification of sole source problems.
5. Reassessment of piecemeal R&D.
6. Transfer of technology.

Improvement in the interface between the developer and user

Communication between the developer and user is a key element in an effective R&D program. The better the linkage, the more probable it is that the user will receive a viable product. This interface is sensitive to geography; that is, it is in direct relationship to the distance between the developer and user.

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Consideration should be given to establishing TSD and ORD offices (however small) at Headquarters. These offices should be staffed with technically qualified and people-oriented representatives, who would serve as bridges between the developer and user.

It is suggested also that the time required to transfer the R&D product to the user be shortened. This could be implemented by having the user become more directly involved during the final developmental stage, e.g., six months prior to the estimated transfer date.

Provision should be made for more frequent meetings of the R&D Coordination Board for exchanging technical data and updating the status of current activities. The emphasis of the R&D Board should be on work in progress and new approaches being considered. While the Board was set up to meet at fairly regular intervals, many months may go by without a formal meeting. Some kind of weekly or bi-weekly schedule would facilitate the exchange of technical information and would serve to optimize R&D efforts.

It might be useful for the R&D Coordination Board to form working groups to identify promising technologies, specify research requirements, and provide five year technological forecasts in selected areas, e.g., audio surveillance. Each group would be chaired by the most concerned component and work for three to six months. These short-lived groups are more likely to attract creative scientists and, by stipulating a relatively short life span, the groups are more likely to establish and reach viable goals. In addition, symposia for interchange of technical data between R&D personnel and user components should be expanded.

The need for long-range planning

The need for a set of well articulated long-range goals and objectives is frequently mentioned by those in the Agency R&D community. A single component or group in the Agency should be tasked with identifying our long-range R&D goals and objectives. Some kinds of questions which might be addressed in this area are outlined below:

Does the Agency need a means of detecting weather modifications by other National powers? If so, what kind of effort should we expend?

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Does the Agency need a billion dollar communications network to service the myriad sensors and receptors which will collect data in the next decade? Or should we establish communication facilities piecemeal, as the requirement dictates?

What is the best way to satisfy the requirement for the exchange of digitally encoded information between Agencies in the intelligence community? Should we live with the proliferation of fragmented networks handling diverse kinds of information, or should we concentrate on one large super-network of electronic computers?

Possible change in project approval procedures

Another look should be taken at the R&D project approval process. At present, the Executive Director-Comptroller approves projects before they have been considered by the Contract Review Board. If this sequence were reversed, the Executive Director-Comptroller would have completed staff work prior to the request for his approval.

Clarification of sole source problems

The large percentage of sole source R&D contracts is a matter of continued concern within the Agency. MAG recognizes the problem but feels that an attempt to establish and enforce guidelines could be counter productive. The determination to let a sole source contract is a judgment factor which must rely on good R&D management and the technical competence and integrity of the project officer.

Reassessment of piecemeal R&D

Piecemeal R&D contracting possibly mitigates against efficient R&D. This practice could be reassessed with a view that smaller projects which relate to certain overall Agency priorities be combined into a single project for more efficient management. Exploratory R&D in new technological areas should continue to be encouraged, when related to possible priority intelligence gains.

Transfer of technology

Consideration should be given to the development of an R&D career service. This would facilitate the exchange of personnel from one R&D component to another. Such free exchange should

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result in the propagation of technology throughout the Agency. Further, the cross training of Agency R&D managers in relevant industry environments could enhance research and managerial skills.

MAG also considered several other general subjects as follows:

The sideways brain drain

Consideration should be given to a more effective use of our in-house engineering talent. Engineers and scientists working in the smaller R&D components are generally given projects with relatively small funding. There is a tendency for the new scientist/engineer to move to components where projects have larger funding. While the bigger project profits from this internal migration of talent, the smaller project may suffer. The successful development of a recent large project by TSD demonstrates that the talent to manage and bring large projects to fruition is available within the smaller component. It is suggested that there be an occasional deliberate assignment of such projects to smaller R&D components.

Duplication of effort

Duplication exists but it does not appear to be a major problem. A continued awareness and monitoring for possible duplication appears to be the best deterrent. The present summary list of R&D projects could be modified to include an abstract of all ongoing R&D projects along with other relevant information to minimize basic resource expenditures.

Mechanics of contracting

The Agency practice of negotiating, where applicable, R&D overhead rates following the DOD method still appears to result overall in significantly lower costs and expenditure of personnel (auditors). Little change is anticipated in the near future which would warrant conversion to any alternate method of negotiation for overhead rates.

Yardsticks that can be applied to measure R&D effectiveness

A valid measure of effectiveness may be determined through a systems analysis approach to R&D. Certain important factors appear to emerge which are suggestive of future study.

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ORD performance should continue to be judged by a different yardstick than other R&D components subject to supporting the Agency's mission. Its work should revolve in large part around the development of ideas, techniques, and projects without roots in specific current requirements, but with possibilities for a long term payoff.

Management Advisory Group